LEPTOSPIROSIS IN THE AMERICAS REGION

From an outbreak perspective

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What is Leptospirosis?

Leptospirosis is a zoonotic disease of epidemic-prone, especially after heavy rainfall. It occurs throughout the world and is emerging as an important public health problem, affecting mostly vulnerable populations.

This bacterial disease may present as a mild illness that may progress to a more serious and sometimes fatal disease. Its symptoms may mimic many diseases, such as influenza, dengue and other viral hemorrhagic diseases. Making the correct diagnosis (clinical and laboratory) at the onset of symptoms is important to prevent severe cases and save lives, primarily in outbreak situations.

Previous estimates indicate that there are more than 500,000 cases of leptospirosis each year worldwide. The majority of reported cases have severe manifestations, leading to significant mortality. The global burden of disease is being estimated by the Leptospirosis Burden Epidemiology Reference Group (LERG), coordinated by the WHO and partners.

Why is Leptospirosis a priority for the Americas?

About ten million people are affected by natural disasters in the Americas annually, with the majority of them being floods (38%) and storms (38%) (Figure 1).

Since the implementation of the revised version of the International Health Regulations (IHR), which was enacted in June 2007, events considered as a potential public health emergency of international concern (PHEIC) are recorded by the Events Management System (EMS) that supports the IHR. Leptospirosis is among the “top 10 events of infectious hazard” reported in the EMS globally and for the Americas it is the third infectious hazard; confirming the importance of this disease as a potential threat to public health (Figure 2).

Reviewing the HealthMap database that utilizes different online sources for real-time surveillance of emerging public health threats, 530 alerts for leptospirosis were found between 2010 and 2012 worldwide. More than half of them (341 alerts) were located in the Americas, particularly in Brazil (142 alerts), Nicaragua (45) and Argentina (43) (Figure 3). For the Americas, a study conducted by the Pan American Health Organization (PAHO) shows that 70% of PHEIC occurs in the animal/human health interface, which includes outbreaks of leptospirosis (Figure 4).

Leptospirosis and One Health

Humans usually acquire leptospirosis through direct contact with the urine of infected animals or a urine-contaminated environment. The change of weather patterns such as heavy rains and floods, increase the risk of occurrence of severe epidemics of leptospirosis.

Leptospira interrogans is pathogenic to humans and animals, with more than 200 serologic variants or serovars A wide variety of animal species, both wild and domestic, can serve as sources of infection for humans. The species that are considered to be the most important include feral and peridomestic rodents (rats, mice, voles, etc.) and domestic animals.

Local studies developed in Central America, a sub-region with many alerts on leptospirosis, presented high prevalence of leptospirosis in livestock and domestic animals. In Nicaragua, leptospirosis prevalence was found in bovine (33-56%), equine (20-76%), porcine (35-51%) and canine (41-51%), among others. In Honduras, a study found 62% of positivity for leptospirosis among animals; the ones with the highest percentages were bovines (67%) and equines (63%). Another local study conducted in Honduras presented 34% of prevalence, in this case bovine presented the highest percentages (83%) followed by ovine (72%). These results suggest the importance of leptospirosis in countries where the vulnerable rural populations depend mostly on their animals for income and every day protein intake.

Support affected countries to reduce the impact of leptospirosis outbreaks by:

- Identifying major risk areas for disease outbreaks
- Increasing the knowledge of possible drivers
- Further understanding the relationship between animals, humans and ecosystem in the disease cycle
- Strengthening existing preventive measures and studying new ones
- Improving clinic and laboratory diagnosis
- Translating research into operational tools
- Providing guidance and capacity building for outbreak preparedness and response
- Further studying the impact of leptospirosis in livestock
- Raising awareness of the importance of the disease for decision makers

Utilize the One Health framework and the GLEAN initiative to predict, prevent, detect and intervene in leptospirosis outbreaks.

References


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